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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,062	06/25/2001	Gerard-Marie Martin	LLBR:0003/Y0	1276

7590 11/06/2002
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EXAMINER

PATEL, ISHWARBHAI B

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/806,062

Applicant(s)

MARTIN, GERARD-MARIE

Examiner

Ishwar (I. B.) Patel

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☒ Claim(s) 9-16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Drawings

1. The drawings are objected to because the figures are improperly cross hatched. The cross hatching patterns should be selected from those shown on page 600-81 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP 608.02.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Abstract

2. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Specification

3. The specification is objected to as it does not follow the general guidelines / format of the layout. The applicant is advised to modify the layout as shown below.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in

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upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 9-16 are narrative and indefinite, failing to conform with current U.S. practice. It appears to be a literal translation into English from a foreign document.

Further in claim 1, it is not clear whether the base plate is a part of the claim or not. If it is part of the claim, will the whole assembly along with the base plate be

installed on other heat radiation plate? Further, it is not clear whether the pads, sole plate and the base are all integral part of one unit or they are separate.

In claim 11, it is not clear what the applicant is meant by the assembly in contact with base. Is base different than the assembly or is sole plate in contact with base?

In claim 12, it is not clear what joint the applicant is referring. A joint between the component and pad or a joint between the sole plate and the base.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morton, US Patent No. 5,104,904, in view of Schneider, US Patent 5,172,301.

Regarding claim 9, Morton discloses an assembly comprising:

a printed circuit card with plurality of holes intended to transfer heat between one face of said printed circuit card, which supports one or more electronic components and

a base forming a radiator (printed circuit board 60, with holes 62 and electronic device 74, which is in a package, and cold plate 10, see figure 5-6, column 32-67),

having plurality of pads which are made of thermally conductive material and pass through the printed circuit card over substantially its whole thickness, a sole plate (pad 76 and sole plate 78, see figure 6, column 4, line 53-67),

except the pads are integral with a sole plate. However, pads with integral plate are known in the art and can be used depending upon specific requirement to have resultant better heat dissipation rate. Schneider discloses one such integral pad with sole plate to have efficient heat transfer from the component. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the assembly of Morton with integral sole plate with pads in order to have efficient heat transfer rate.

Regarding claim 10, though the modified assembly of Morton does not specifically disclose the material of bottom of the casing for the electronic component with respect to the sole plate, generally it is known in the art to have both material with a better thermal conductivity in order to rapidly dissipating the heat. Furthermore, the thermal via are also used as ground vias, in those case it is better to have the conductivity of the bottom of the box and that of the pad same to have better and reliable grounding. Therefore, it would have been obvious to one having ordinary skill in

the art at the time the invention was made to provide the assembly of Morton with the bottom of the box and the pads made out of the material with similar electrical conductivity for reliable grounding of the system.

Regarding claim 11, Morton further discloses a ductile thermal joint at the base (a thermal grease or other thermally conductive material may be applied to the interface 82, see figure 6, column 5, line 1-10).

Regarding claim 12, Morton further discloses the pads in contact with electronic component through a ductile joint (glue is deposited on the top surface 80, see figure 6, line 53-67).

Regarding claim 13, though Morton does not disclose any complementary means capable of Mechanically holding the sole plate to the card, such means are known in the art for apparent reason of guiding and holding the sole plate. Schneider discloses such means, see Schneider Figure 4. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the assembly of Morton with the complementary means capable of Mechanically holding the sole plate to the card as disclosed by Schneider, apparently in order to guide and hold the sole plate.

Regarding claim 14, the modified assembly of Morton further discloses the spikes, see Schneider figure 4.

Regarding claim 15, though Morton discloses glue for joining the pad and circuit board, the solder can be used for better thermal path as further disclosed by Morton for joining the component with the pad, column 4, line 58 to column 5 line 10. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the assembly of Morton with the pad joined with the circuit board using solder in order to have better thermal path.

Regarding claim 16, though the modified assembly of Morton does not disclose a hole in the sole plate, providing a vent hole for relieving any trapped air or gas generated during the process is known and can be provided based on the specific situation to avoid void or crack in the joint which may lead to poor electrical and mechanical performance. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the assembly of Morton with a hole in sole plate for the obvious reason of releasing any trapped air or gas generated during the process.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. McIver et al., Peugh et al., Dubin et al., Katchmar, Kang, Iovdalsky disclose assembly similar to applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (703) 305 2617. The examiner can normally be reached on M-F (6:30 - 4) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L Talbott can be reached on (703) 305 9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3431 for regular communications and (703) 305 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

ibp
October 31, 2002


ALBERT W. PALADINI
PRIMARY EXAMINER